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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,904	12/08/2005	Seung-Don Choi	LEE-0044	9625

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EXAMINER	
DAVIS, PATRICIA A	
ART UNIT	**PAPER NUMBER**
4111	

NOTIFICATION DATE	DELIVERY MODE
03/19/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/559,904	CHOI ET AL.	
	Examiner	Art Unit	
	PATRICIA DAVIS	4111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/8/05; 2/8/06; 1/23/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4, 5, 8 and 10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Maeda et al. (U.S. Patent No. 6,998,071) (hereinafter "Maeda").

Regarding claims 1 and 2, Maeda teaches a lithium non-aqueous electrolyte secondary cell comprising a cathode active material, comprising cobalt oxide particles surface-coated with magnesium hydroxide. Maeda further discloses that the composition of the magnesium hydroxide has a BET specific area value of 0.5 to 50 m^2/g (see col. 2, lines 19-31 and col. 3, lines 7-17).

Regarding claim 4, Maeda teaches a lithium non-aqueous electrolyte secondary cell consisting of a magnesium hydroxide for the cathode active material (see col. 3, lines 7-17).

Regarding claim 5, Maeda teaches a non-aqueous electrolyte secondary cell (lithium ion battery) comprising a cathode, an anode, and a non-aqueous electrolyte (see col. 2, lines 19-31 and col.9,lines 60-67). Maeda further discloses that the composition of the magnesium hydroxide has a BET specific area value of 0.5 to 50 m^2/g (see col. 3, lines 7-17).

Regarding claim 8, Maeda teaches a lithium non-aqueous electrolyte secondary cell comprising a cathode active material, comprising cobalt oxide particles surface-coated with magnesium hydroxide. Maeda further discloses that the composition of the magnesium hydroxide has a BET specific area value of 0.5 to 50 m^2/g (see col. 2, lines 19-31 and col. 3, lines 7-17).

Regarding claim 10, Maeda teaches a lithium non-aqueous electrolyte secondary cell consisting of a magnesium hydroxide for the cathode active material (see col. 3, lines 7-17).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claim 3 is rejected 35 U.S.C. 35 103(a) as being unpatentable over Maeda as applied to claims 1, 2, 4, 5, 8 and 10 above, and further in view of Langan (U.S. Patent No. 4,913,988).

Regarding claim 3, Maeda teaches all of the positively recited elements of claim 1. Maeda does not specifically teach the cathode for a battery that comprises a metal hydroxide in the amount of greater than 0 weight percent and less than 10 weight percent.

The applicant is advised that the Supreme Court recently clarified that a claim can be proved obvious merely by showing that the combination of known elements was obvious to try. In this regard, the Supreme Court explained that, "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has a good reason to pursue the known options within his or her technical grasp." An obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of the case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not. The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143).

In that regard, Langan teaches that the cathodic material additive can be made of alkaline earth metal hydroxides to improve the cell performance. Langman further teaches that calcium hydroxide can be used to improve closed circuit voltage retention

after storage at elevated temperatures and is mixed into the cathode material at a weight percent preferably of 1.3% (see col. 2, line 22- col. 3, line 1).

Therefore, it would have been obvious to one with ordinary skill in the art to incorporate a metal hydroxide with a weight percent of 1.3% in a lithium ion secondary battery to improve the closed circuit voltage retention after storage at elevated temperatures.

Regarding claim 9, Maeda teaches all of the positively recited elements of claim 5. Maeda does not specifically teach the cathode for a battery that comprises a metal hydroxide in the amount of greater than 0 weight percent and less than 10 weight percent. The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143).

In that regard, Langman teaches that the cathodic material additive can be made of alkaline earth metal hydroxides to improve the cell performance. Langman further teaches that calcium hydroxide can be used to improve closed circuit voltage retention after storage at elevated temperatures and is mixed into the cathode material at a weight percent preferably of 1.3% (see col. 2, line 22- col. 3, line 1). Therefore, it would have been obvious to one with ordinary skill in the art to incorporate a metal hydroxide with a weight percent of 1.3% in a lithium ion secondary battery to improve the closed circuit voltage retention after storage at elevated temperatures.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda as applied to claims 1, 2, 4, 5, 8 and 10 above, and further in view of Hibara (JP 2002-8718).

Regarding claim 6, Maeda does not teach that the electrolyte comprises at least one additive selected from the group consisting of the compounds represented by the following formula 1-4: wherein, each of the R_1 and R_2 is independently selected from the group consisting of H, a C_1-C_5 alkyl group, a halogen atom, and a phenyl group and a phenoxy group non-substituted with a C_1-C_5 alkyl group or a halogen atom (formulae 1, 3, and 4); and R is C_1-C_5 alkenyl group or a C_1-C_5 alkyl group (formula 2).

However, Hibara teaches a non-aqueous electrolyte secondary battery, wherein the electrolyte comprises the following additives and each R_{11} and R_{12} is independently selected from the group consisting of H or a C_1-C_5 alkyl group (see paragraph 0031 claim 5, formula 4b). This is used as an additive to be added to the secondary battery electrolyte to improve the charge and discharge characteristics (see paragraph 0001). The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143).

Therefore, it would be obvious to one with ordinary skill in the art to combine the lithium ion battery to use the above electrolytes to improve the charge and discharge characteristics of the battery.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda in view of Hibara as applied to claims 1, 2, 4, 5, 6, 8 and 10 above, and further and in further view of Unoki et al. (JP 2002-083632) (hereinafter "Unoki").

Regarding claim 7, Maeda and Hibara, teach all of the positively recited elements of claim 6. Maeda and Hibara do not teach the specific additives for the formulas 1-4.

However, Hibara teaches that the additive for formula one can be VC (vinylene carbonate) (see paragraphs 0031-0033).

Unoki teaches that the electrolyte for the secondary battery for formulas 2-4 uses the additive propane sultone (PS) for high temperature preservation of a cell and cycle characteristics (see paragraphs 0001 and 0008-0011). The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143). Therefore, it would be obvious to one with ordinary skill in the art to combine these additives to the lithium battery to improve the high temperature preservation of a cell and the cycle characteristics of the battery.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICIA DAVIS whose telephone number is (571)270-7868. The examiner can normally be reached on 7:30am-5pm EST. Monday-Friday, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

P.D.

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795